



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,759	10/30/2003	Takushi Yokoyama	0425-1062P	6887
2292	7590	02/10/2006		
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			EXAMINER GELLNER, JEFFREY L	
			ART UNIT 3643	PAPER NUMBER
DATE MAILED: 02/10/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/695,759

Applicant(s)

YOKOYAMA ET AL.

Examiner

Jeffrey L. Gellner

Art Unit

3643

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 November 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 5,6,8,9,16 and 17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4,7,10,11,13-15 and 19-26 is/are rejected.
- 7) ☒ Claim(s) 12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

Acknowledgement is made of Applicants' IDS received 18 March 2004.

#### *Election/Restrictions*

Applicant's election without traverse of: a) phosphate glass; b) Al hydroxide; c) guanidine nitrate; d) basic copper nitrate; e) sodium caboxymethylcellulose; and, f) copper oxide in the reply filed on 28 November 2005 is acknowledged. Claims 5, 6, 8, 9, 16, and 17 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Claims 16 and 17 are considered non-elective because it is drawn to a fuel that is mixture including guanidine nitrate. Applicants' election was for the fuel to be guanidine nitrate, not a mixture including guanidine nitrate.

#### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 7, 10, 13, 19, <sup>20</sup> and 22-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Poole et al. (US 5,386,775) in view of Kishi et al. (US 4,021,275).

As to claim 1, Poole et al. discloses a gas generating composition (col. 1 lines 5-8) comprising silica (col. 2, lines 65-68) and aluminum hydroxide (col. 2, lines 65-68). Not

Art Unit: 3643

disclosed is the use of glass powder. Kishi et al., however, discloses the use of glass (col. 4 lines 28-46) with silica. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the composition Poole et al. by using powdered glass as disclosed by Kishi et al. so as to have larger slag fragments which are easier to filter (from Kishi et al. at col. 4 lines 28-46).

As to claims 2, 10, Poole et al. discloses a gas generating composition (col. 1 lines 5-8) comprising silica (col. 2, lines 65-68); aluminum hydroxide (col. 2, lines 65-68); an organic fuel, guanidine nitrate (col. 2 lines 46-54); and an oxygen-containing oxidizing agent (col. 2 lines 55-60). Not disclosed is the use of glass powder. Kishi et al., however, discloses the use of glass (col. 4 lines 28-46) with silica. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the composition Poole et al. by using powdered glass as disclosed by Kishi et al. so as to have larger slag fragments which are easier to filter (from Kishi et al. at col. 4 lines 28-46).

As to claim 7, Poole et al. as modified by Kishi et al. further disclose quartz glass, soda lime glass, lead glass, aluminoborosilicate glass, borosilicate glass, aluminosilicate glass, and chalcogen glass (Kishi et al. at col. 4 lines 40-46).

As to claim 13, Poole et al. as modified by Kishi et al. further disclose talc and clay (Poole et al. at col. 2 lines 65-68).

As to claims 19 and 20, Poole et al. as modified by Kishi et al. further disclose a molded article by extrusion or an inflator (inherent in Poole et al. as modified by Kishi et al.).

As to claims 22-26, Poole et al. as modified by Kishi et al. further disclose the glass powder being 5 to 300 microns. It would have been obvious to one of ordinary skill in the art at

Art Unit: 3643

the time of the invention to modify the further modify the composition of Poole et al. as modified by Kishi et al. by having the mass of the glass powder from 05. to 5% so as achieve a desired slag effect.

Claims 3, 4, 11, 14, 15, and 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Poole et al. (US 5,386,775) in view of Kishi et al. (US 4,021,275) in further view of Hinshaw et al. (US 5,241,281 B1).

As to claim 3, the limitations of claims 1 and 2 are disclosed as described above. Poole et al. as modified by Kishi et al. further disclose silicon dioxide (“silica” of Poole et al.). Not disclosed is a binder and an additive of metal oxide and the silicon dioxide having a specific surface area of 100 to 500 m<sup>2</sup>/g. Hinshaw et al., however, discloses a binder (abstract) and a metal oxide additive (col. 9 lines 54-63). It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the composition Poole et al. as modified by Kishi et al. by adding a binder and additive as disclosed by Hinshaw et al. so as to improve mechanical properties (Hinshaw et al. at col. 3 lines 15-2) for the binder and to modify the burn rate (Hinshaw et al. at col. 9 lines 54-63) and to have the silicon dioxide with a specific surface area of 100 to 500 m<sup>2</sup>/g so as to achieve the desired slag/filter size.

As to claim 4, the limitations of claim 3 are disclosed as described above. Poole et al. as modified by Kishi et al. and Hinshaw et al. further disclose component (c) between 30 and 60% (Poole et al. at col. 5, Example 1); and component (d) 60% or less ((Poole et al. at col. 5, Example 1). It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the composition Poole et al. as modified by Kishi et al. and Hinshaw

Art Unit: 3643

et al by making the components have the percentages as disclosed in claim 4 so as to achieve a desired burn rate and gas generation.

As to claim 11, Poole et al. as modified by Kishi et al. and Hinshaw et al. further disclose a basic metal nitrate ("gerhardite" of Table 2 of Hinshaw et al.).

As to claim 14, Poole et al. as modified by Kishi et al. and Hinshaw et al. further disclose aluminum hydroxide (Poole et al. at col. 2 lines 65-68). Not disclosed is the binder being 1 to 5% mass. It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the composition Poole et al. as modified by Kishi et al. and Hinshaw et al by making the binder 1 to 5% mass so as to achieve a desired mechanical strength (from Hinshaw et al. at col. 3 lines 15-20).

As to claim 15, Poole et al. discloses a gas generating composition (col. 1 lines 5-8) comprising silica (col. 2, lines 65-68) and guanidine nitrate (col. 2, lines 46-54). Not disclosed is the use of glass powder and basic copper nitrate. Kishi et al., however, discloses the use of glass (col. 4 lines 28-46) with silica; and, Hinshaw et al. discloses basic metal nitrate ("gerhardite" of Table 2 of Hinshaw et al.). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the composition Poole et al. by using powdered glass as disclosed by Kishi et al. so as to have larger slag fragments which are easier to filter (from Kishi et al. at col. 4 lines 28-46) and to use basic copper nitrate as disclosed by Hinshaw et al. so as to have a cool burning compound that is less costly (see Hinshaw et al. at col. 12 lines 36-47).

As to claim 18, Poole et al. as modified by Kishi et al. and Hinshaw et al. further disclose Al hydroxide (Poole et al. at col. 2 lines 65-68).

Art Unit: 3643

As to claims 19,20, and 21, Poole et al. as modified by Kishi et al. and Hinshaw et al. further disclose a molded article by extrusion or an inflator (inherent in Poole et al. as modified by Kishi et al. and Hinshaw et al.).

*Allowable Subject Matter*

Claims 12, objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

*Conclusion*

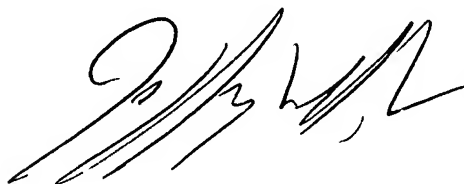
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Wu and Yamato disclose in the prior art various patents from the same assignee.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey L. Gellner whose telephone number is 571.272.6887. The examiner can normally be reached on Monday-Friday, 8:30-4:00, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Poon can be reached on 571.272.6891. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3643

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'J. Gellner', with a stylized flourish at the end.

Jeffrey L. Gellner  
Primary Examiner  
Art Unit 3643